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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 09/672,352
Filing Date: September 28, 2000
Appellant(s): STALEY ET AL.

Jason S. Feldmar
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 5/9/06 appealing from the Office action mailed 12/9/05.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

Claims 1, 4-6, 8, 12-14, 16-19, 21, 23 and 26-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lim (5,638,126) in view of Linzer (6,038,256).

Claims 9-11, 15 and 24-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lim (5,638,126) Linzer (6,038,256) and in view of Gonzales (5,231,484).

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

5,638,126	LIM	6-1997
6,038,256	LINZER ET AL	3-2000
5,231,484	GONZALES ET AL	7-1993

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1, 4-6, 8, 12-14, 16-19, 21, 23 and 26-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lim (5,638,126) in view of Linzer (6,038,256).

Regarding claims 1 and 19, Lim discloses a program storage media storing computer executable instructions, the instructions to cause a computer to:

determining a separate function for each frame in a sequence of frames, each function relating encoded size to encoded quality for each frame in a sequence of frames, each frame having data for an image (fig.1, element 10 is the controller connected to the buffer 120 that receives various sizes or amounts of frame image data encoded by coder 110, where a sequence of frames is sent through the encoding

system of fig.1 in that since Lim's invention uses an MPEG encoder for encoding a plurality of images, I, P and B frames, each frame within that sequence of frames (GOP) have different sizes, and further, note quantization controller 10, there is a selector 160 that decides which quantization parameter to use on the evaluated frame(s) in order to properly allocate the number of bits to the evaluated frame(s) for efficient coding);

performing a search of all of the separate functions to determine a best quality value for encoding the sequence of frames whose encoded sizes satisfy one or more constraints, the constraints being associated with one or more of a transmission line bandwidth, a receiver buffer size and a total size constraint (fig.1, element 10 is the controller connected to the buffer 120 that receives various sizes or amounts of frame image data encoded by coder 110, where the process of generating the encoded data at an acceptable bit rate for transmission in that a recursive process is done to monitor the quality of the encoded bit frames by checking on the buffer fullness to determine the total size constraint, and note Qp adjuster 130 adjusts the quality of the encoded frames and element 160 selects the best quality value Qp, thus, best quality value is ascertained; see col.3, ln.47-53);

encode each frame of the entire sequence of frames with the determined best quality value (fig.1, note Qp adjuster 130 adjusts the quality of the encoded frames and element 160 selects the best quality value Qp, and coder 110 utilizes the information from quantization parameter deciding block 10 for coding with the best quality value);

determine whether each encoded frame satisfies the constraints (fig.1, note a recursive process is done to monitor the quality of the encoded bit frames by checking

on the buffer fullness to determine the total size constraint to determine whether the frame satisfies the constraints); and

if the encoded frames satisfy the constraints, order transmission of frames of the sequence (fig.1, note data from buffer 120 is transmitted to transmission for transmission of frames of the sequence of images).

Lim does not specifically disclose the prior to encoding any of the frames that performs a search of all frames in the sequence of frames for a best quality value. However, Linzer teaches that prior to encoding any of the frames, there is an execution of searching of all the frames prior to encoding any of the frames (fig.3, element 24 and col.5, ln.63-67 and col.6, ln.9-13 and ln.25-26, note the statistics gatherer 24 obtains a search of all the frames from the video sources to obtain a best quality value prior to encoding any of the frames). Therefore, it would have been obvious to one of ordinary skill in the art to combine the teachings of Lim and Linzer, together as a whole, for gathering all of the possible pre-encoding data so as to efficiently encoding high quality images in an accurate, precise manner (Linzer col.3, ln.64 to col.4, ln.13).

Note claims 4-6, 12-14, 21 and 26-31 have similar corresponding elements.

Regarding claims 8 and 23, Lim discloses the encoded frames are from a group of temporally encoded pictures (Lim's invention uses an MPEG encoder for encoding a sequence of images wherein the plurality of images are I, P and B frames, and that these are temporal).

Regarding claim 16, Lim discloses a system for encoding image frames, the system comprising:

a controller connected to receive data on sizes on image frames that are part of a sequence of image frames (fig.1, element 10), to be encoded by the encoder and to control quality of the encoded frames produced by the encoder based on:

determination of a separate function for each image frame in the sequence of image frames, each function relating encoding size to encoded quality for each frame in the sequence of frames (fig.1, element 10 is the controller connected to the buffer 120 that receives various sizes or amounts of frame image data encoded by coder 110, where a sequence of frames is sent through the encoding system of fig.1 in that since Lim's invention uses an MPEG encoder for encoding a plurality of images, I, P and B frames, each frame within that sequence of frames (GOP) have different sizes, and further, note quantization controller 10, there is a selector 160 that decides which quantization parameter to use on the evaluated frame(s) in order to properly allocate the number of bits to the evaluated frame(s) for efficient coding);

a search of all of the separate functions to determine a best quality value for encoding the sequence of frames whose encoded sizes satisfy one or more constraints, the constraints being associated with one of a bandwidth of a transmission line, space in a receiver buffer and a total compressed size (fig.1, element 10 is the controller connected to the buffer 120 that receives various sizes or amounts of frame image data encoded by coder 110, where the process of generating the encoded data at an acceptable bit rate for transmission in that a recursive process is done to monitor the quality of the encoded bit frames by checking on the buffer fullness to determine the total size constraint, and note Qp adjuster 130 adjusts the quality of the encoded frames

and element 160 selects the best quality value Qp, thus, best quality value is ascertained; see col.3, ln.47-53); and

a variable bit rate encoder controlled by the controller configured to encode each frame of the entire sequence of frames with the determined best quality value, wherein the controller is further configured to determine whether each encoded frame satisfies the constraints, and if the encoded frames satisfy the constraints, transmitting the sequence of encoded frames (fig., element 110 is the variable bit rate encoder controlled by the controller 10 connected to the buffer 120 that receives various sizes or amounts of frame image data encoded by coder 110, where the process of generating the encoded data at an acceptable bit rate for transmission in that a recursive process is done to monitor the quality of the encoded bit frames by checking on the buffer fullness to determine the total size constraint, and note Qp adjuster 130 adjusts the quality of the encoded frames and element 160 selects the best quality value Qp, thus, best quality value is ascertained; see col.3, ln.47-53).

Lim does not specifically disclose the *prior to encoding* any of the frames that performs a search of all frames in the sequence of frames for a best quality value. However, Linzer teaches that prior to encoding any of the frames, there is an execution of searching of all the frames prior to encoding any of the frames (fig.3, element 24 and col.5, ln.63-67 and col.6, ln.9-13 and ln.25-26, note the statistics gatherer 24 obtains a search of all the frames from the video sources to obtain a best quality value prior to encoding any of the frames). Therefore, it would have been obvious to one of ordinary skill in the art to combine the teachings of Lim and Linzer, together as a whole, for

gathering all of the possible pre-encoding data so as to efficiently encoding high quality images in an accurate, precise manner (Linzer col.3, ln.64 to col.4, ln.13).

Regarding claim 17, Lim discloses wherein the controller is configured to determine a relation between quality of an encoded image frame and amount of encoded data from the received size data (col.3, ln.47-53 and fig.1, note Qp adjuster 130 adjusts the quality of the encoded frames and element 160 selects the best quality value Qp based on the data obtained from the buffer 120).

Regarding claim 18, Lim discloses wherein the controller is configured to determine a best quality value for encoding an image frame from size data on data frames encoded with different qualities (fig.1, element 10 is the controller connected to the buffer 120 that receives various sizes or amounts of frame image data encoded by coder 110, where the process of generating the encoded data at an acceptable bit rate for transmission in that a recursive process is done to monitor the quality of the encoded bit frames by checking on the buffer fullness to determine the total size constraint, and note Qp adjuster 130 adjusts the quality of the encoded frames and element 160 selects the best quality value Qp; see col.3, ln.47-53).

Claims 9-11, 15 and 24-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lim (5,638,126) Linzer (6,038,256) and in view of Gonzales (5,231,484).

Regarding claims 9-11, 15 and 24-25, Lim does not specifically disclose wherein each instruction to estimate one of the forms, further causes the computer to: compute a plurality of pairs of encoded quality and encoded size values for each frame of the

sequence from encoded frame data; and determine a functional relationship between values of the encoded quality and the encoded size for the plurality of frames from the pairs of values. However, Gonzales teaches the calculation of the pairs of quantization parameters for each frame with their respective encoded size values (col.21, ln.3-33; note the QP_{low} has two different values calculated for the different values of the picture, where delta u is the upper limit and delta l is the lower limit for the allocation of bits for the picture or frame, and note that there is a function relationship between the values of the encoded quality and the encoded size of the frames as shown by formula for QP_{low}). Therefore, it would have been obvious to one of ordinary skill in the art to combine the teachings of Lim and Gonzales, as a whole, for providing optimal visual quality when encoding picture or frame data in an accurate, efficient manner (Gonzales col.8, ln.29-38).

(10) Response to Argument

Regarding 2-3 on page 5 of appellant's arguments, appellant states that that neither Lim, Linzer nor Gonzales teach, disclose or suggest a separate function, for each frame in a sequence of frames, that relates encoded size to encoded quality for each frame. The examiner respectfully disagrees. In fig.1, Lim discloses the controller 10 is connected to the buffer 120 that receives various amounts or sizes of image frames encoded by coder 110, in that a sequence of frames is sent through the encoding system of fig.1 in a recyclical or recursive manner that applies an MPEG video image encoding recursive rate control encoding scheme for encoding a plurality of images, I, P and B frames. Each frame within that sequence of frames (GOP) have

different sizes. Further, Lim's fig.1, there is a quantization controller 10 and a selector 160 that decides which quantization parameter to use on the evaluated frame(s) in order to properly allocate the number of bits to the evaluated frame(s) for efficient coding. Thus, Lim teaches a separate function, for each frame in a sequence of frames, that relates encoded size to encoded quality for each frame.

Regarding lines 4-5 on page 5 of appellant's arguments, appellant asserts that neither Lim, Linzer nor Gonzales teach, disclose or suggest a search of all of the separate functions to determine a best quality value to encode the entire sequence, and encoding each frame using the same determined best quality for all of the frames. The examiner respectfully disagrees. In fig.1, Lim discloses an MPEG video image encoding recursive rate control encoding scheme, as elaborated in the above arguments. Note the buffer 110 is image data storage that can store images of various sizes in that a recursive process is done to monitor the quality of the encoded bit frames by checking on the buffer fullness to determine the total size constraint. The Qp adjuster 130 of Lim's fig.1 adjusts the quality of the encoded frames and element 160 selects the best quality value Qp out of a plurality of quality values obtained by functions performed by Qp adjuster and evaluation of the multitudes of degrees of buffer fullness. Thus, best quality value is ascertained and searched, as disclosed in col.3, ln.47-53. Therefore, Lim discloses a search of all of the separate functions to determine a best quality value to encode the entire sequence, and encoding each frame using the same determined best quality for all of the frames.

Regarding lines 6-7 on page 5 of appellant's arguments, appellant contends that encoding each frame using the same determined best quality for all of the frames. The examiner respectfully disagrees. In figure 1, Lim discloses that Qp adjuster 130 adjusts the quality of the encoded frames and element 160 selects the best quality value Qp, and coder 110 utilizes the information from quantization parameter deciding block 10 for coding with the best quality value. Thus, Lim teaches encoding each frame using the same determined best quality for all of the frames.

Regarding lines 8-9 on page 5 of appellant's arguments, appellant argues that Lim teaches away from searching all of the separate functions prior to encoding any of the frames. The examiner respectfully disagrees. The claims are rejected with Lim, Linzer and Gonzales are combinable and useable together because these references pertain to the same analogous MPEG video encoding environment. Thus, Lim does not teach away from searching all of the separate functions prior to encoding any of the frames.

Regarding lines 3-13 on page 7 of appellant's arguments, appellant states that Lim only discloses the determination of quality values on a slice-to-slice basis, and that Lim does not even remotely describe a function for each frame in a sequence. The examiner respectfully disagrees. One of ordinary skill in the art knows that a frame is subdivided into slices, and eventually, the data is evaluated and determined on the basis of frames. In fig.1, Lim discloses the controller 10 is connected to the buffer 120 that receives various amounts or sizes of image frames encoded by coder 110, in that a sequence of frames is sent through the encoding system of fig.1 in a recyclical or

recursive manner that applies an MPEG video image encoding recursive rate control encoding scheme for encoding a plurality of images, I, P and B frames. Each frame within that sequence of frames (GOP) have different sizes. Further, Lim's fig.1, there is a quantization controller 10 and a selector 160 that decides which quantization parameter to use on the evaluated frame(s) in order to properly allocate the number of bits to the evaluated frame(s) for efficient coding. Thus, Lim teaches a separate function, for each frame in a sequence of frames, that relates encoded size to encoded quality for each frame.

Regarding lines 18-19 on page 7 of appellant's arguments, appellant argues that element 10 is the quantization parameter deciding block and not the controller, and that element 150 is the controller. Lim's element 10 functions as a quantization controller that determines a quantization parameter or a best quality value Qp. In fig.1, Lim discloses the controller 10 is connected to the buffer 120 that receives various amounts or sizes of image frames encoded by coder 110, in that a sequence of frames is sent through the encoding system of fig.1 in a recyclical or recursive manner that applies an MPEG video image encoding recursive rate control encoding scheme for encoding a plurality of images, I, P and B frames. Each frame within that sequence of frames (GOP) have different sizes. Further, Lim's fig.1, there is a quantization controller 10 and a selector 160 that decides which quantization parameter to use on the evaluated frame(s) in order to properly allocate the number of bits to the evaluated frame(s) for efficient coding. Thus, Lim teaches a separate function, for each frame in a sequence of frames, that relates encoded size to encoded quality for each frame.

Regarding lines 4-13 on page 8 of appellant's arguments, appellant asserts that Lim is merely determining a Qp value to use to encode a particular slice of a frame, and that a function for an entire frame among a sequences of frames is not determined. The examiner respectfully disagrees. One of ordinary skill in the art knows that a frame is subdivided into slices, and eventually, the data is evaluated and determined on the basis of frames. In fig.1, Lim discloses the controller 10 is connected to the buffer 120 that receives various amounts or sizes of image frames encoded by coder 110, in that a sequence of frames is sent through the encoding system of fig.1 in a recyclical or recursive manner that applies an MPEG video image encoding recursive rate control encoding scheme for encoding a plurality of images, I, P and B frames. Each frame within that sequence of frames (GOP) have different sizes. Further, Lim's fig.1, there is a quantization controller 10 and a selector 160 that decides which quantization parameter to use on the evaluated frame(s) in order to properly allocate the number of bits to the evaluated frame(s) for efficient coding. Thus, Lim teaches a separate function, for each frame in a sequence of frames, that relates encoded size to encoded quality for each frame.

Regarding lines 21-23 on page 8 of appellant's remarks, appellant states that Linzer does not fails to cure the deficiencies of Lim, and that Linzer does not disclose the prior search aspects of the claims. The examiner respectfully disagrees. Linzer is used to teach *prior to encoding* any of the frames that performs a search of all frames in the sequence of frames for a best quality value, as disclosed in Linzer's fig.3, element 24. Also, see col.5, ln.63-67, col.6, ln.9-13 and ln.25-26, where the statistics gatherer

24 obtains a search of all the frames from the video sources to obtain a best quality value prior to encoding any of the frames. Therefore, it would have been obvious to one of ordinary skill in the art to combine the teachings of Lim and Linzer, together as a whole, for gathering all of the possible pre-encoding data so as to efficiently encoding high quality images in an accurate, precise manner, as suggested in Linzer's column 3, line 64 to column 4, line 13.

Regarding lines 3-5 on page 9 of appellant's arguments, appellant states that Linzer lacks any capability, suggestion or motivation to create a function or to search various functions to determine the best quality value for encoding all of the frames in a sequence, and that Lim and Linzer is not combinable. The examiner respectfully disagrees. In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See In re Fine, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988)and In re Jones, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, it would have been obvious to one of ordinary skill in the art to combine the teachings of Lim and Linzer, together as a whole, for gathering all of the possible pre-encoding data so as to efficiently encoding high quality images in an accurate, precise manner, as suggested in Linzer's column 3, line 64 to column 4, line 13.

Regarding lines 11-16 on page 9 of appellant's remarks, appellant states that none of the teachings, neither Lim, Linzer nor Gonzales teach or suggest a search of all of the separate functions to determine a best quality value to encode the entire sequence, and encoding each frame using the same determined best quality value for all of the frames. The examiner respectfully disagrees. In fig.1, Lim discloses an MPEG video image encoding recursive rate control encoding scheme, as elaborated in the above arguments. Note the buffer 110 is image data storage that can store images of various sizes in that a recursive process is done to monitor the quality of the encoded bit frames by checking on the buffer fullness to determine the total size constraint. The Qp adjuster 130 of Lim's fig.1 adjusts the quality of the encoded frames and element 160 selects the best quality value Qp out of a plurality of quality values obtained by functions performed by Qp adjuster and evaluation of the multitudes of degrees of buffer fullness. Thus, best quality value is ascertained and searched, as disclosed in col.3, ln.47-53. Therefore, Lim discloses a search of all of the separate functions to determine a best quality value to encode the entire sequence, and encoding each frame using the same determined best quality for all of the frames.

Regarding line 27 on page 9 to line 10 of appellant's arguments, appellant states that neither Lim nor Linzer disclose or suggest separate functions for each frame in a sequence and searching the entire sequence. The examiner respectfully disagrees. In fig.1, Lim discloses an MPEG video image encoding recursive rate control encoding scheme, as elaborated in the above arguments. Note the buffer 110 is image data storage that can store images of various sizes in that a recursive process is done to

monitor the quality of the encoded bit frames by checking on the buffer fullness to determine the total size constraint. The Qp adjuster 130 of Lim's fig.1 adjusts the quality of the encoded frames and element 160 selects the best quality value Qp out of a plurality of quality values obtained by functions performed by Qp adjuster and evaluation of the multitudes of degrees of buffer fullness. Thus, best quality value is ascertained and searched, as disclosed in col.3, ln.47-53. Therefore, Lim discloses a search of all of the separate functions to determine a best quality value to encode the entire sequence, and encoding each frame using the same determined best quality for all of the frames.

Regarding lines 12-14 on page 10 of appellant's arguments, appellant argues that Lim teaches away from such an encoding since each slice uses a separate Qp that is based on buffer fullness and the preceding second slice. The examiner respectfully disagrees. One of ordinary skill in the art knows that a frame is subdivided into slices, and eventually, the data is evaluated and determined on the basis of frames. In fig.1, Lim discloses the controller 10 is connected to the buffer 120 that receives various amounts or sizes of image frames encoded by coder 110, in that a sequence of frames is sent through the encoding system of fig.1 in a recyclical or recursive manner that applies an MPEG video image encoding recursive rate control encoding scheme for encoding a plurality of images, I, P and B frames. Each frame within that sequence of frames (GOP) have different sizes. Further, Lim's fig.1, there is a quantization controller 10 and a selector 160 that decides which quantization parameter to use on the evaluated frame(s) in order to properly allocate the number of bits to the evaluated

frame(s) for efficient coding. Thus, Lim teaches a separate function, for each frame in a sequence of frames, that relates encoded size to encoded quality for each frame.

Regarding lines 1-3 on page 11 of appellant's arguments, appellant states that Linzer and Lim cannot be combined together. The examiner respectfully disagrees. The examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See In re Fine, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and In re Jones, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, it would have been obvious to one of ordinary skill in the art to combine the teachings of Lim and Linzer, together as a whole, for gathering all of the possible pre-encoding data so as to efficiently encoding high quality images in an accurate, precise manner, as suggested in Linzer's column 3, line 64 to column 4, line 13.

Regarding lines 3-8 on page 11 of appellant's arguments, appellant states that the references do not teach the search of frames. The examiner respectfully disagrees. In fig.1, Lim discloses an MPEG video image encoding recursive rate control encoding scheme, as elaborated in the above arguments. Note the buffer 110 is image data storage that can store images of various sizes in that a recursive process is done to monitor the quality of the encoded bit frames by checking on the buffer fullness to determine the total size constraint. The Qp adjuster 130 of Lim's fig.1 adjusts the quality of the encoded frames and element 160 selects the best quality value Qp out of

a plurality of quality values obtained by functions performed by Qp adjuster and evaluation of the multitudes of degrees of buffer fullness. Thus, best quality value is ascertained and searched, as disclosed in col.3, ln.47-53. Therefore, Lim discloses a search of all of the separate functions to determine a best quality value to encode the entire sequence, and encoding each frame using the same determined best quality for all of the frames.

Regarding lines 9-15 on page 11 of appellant's arguments, appellant argues that that there is no motivation in Linzer to combine with Lim. The examiner respectfully disagrees. In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See In re Fine, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988)and In re Jones, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, it would have been obvious to one of ordinary skill in the art to combine the teachings of Lim and Linzer, together as a whole, for gathering all of the possible pre-encoding data so as to efficiently encoding high quality images in an accurate, precise manner, as suggested in Linzer's column 3, line 64 to column 4, line 13.

Thus, the present invention is disclosed by the combination of the teachings used in the rejection.

Regarding pages 11-13 of appellant's arguments, appellants states that dependent claims 4-6 and 21 are not disclosed in the prior art. The examiner respectfully disagrees. Since the limitations of claims 4-6 and 21 are similar to claims 1 and 19, these claims are rejected in a similar manner as claims 1 and 19. See the above paragraphs and the rejection.

Regarding page 13 of appellant's arguments about claims 8 and 23, appellant states that Lim does not disclose the encoded frames are from a group of temporally encoded pictures. The examiner respectfully disagrees. Lim's invention uses an MPEG encoder for encoding a sequence of images wherein the plurality of images are I, P and B frames, and that these are temporal. Thus, claims 8 and 23 are met.

Regarding pages 13-14 of appellant's arguments, appellant states that Lim and Linzer do not disclose the limitations of claims 9, 17 and 24. The examiner respectfully disagrees. In column 3, lines 47-53 and fig.1, Lim disclsoes the Qp adjuster 130 adjusts the quality of the encoded frames and element 160 selects the best quality value Qp based on the data obtained from the buffer 120. Thus, claim 17 is disclosed. And for claims 9 and 24, in column 21, lines 3-33, Gonzales suggests that the QP_{low} has two different values calculated for the different values of the picture, where delta u is the upper limit and delta l is the lower limit for the allocation of bits for the picture or frame, and note that there is a function relationship between the values of the encoded quality and the encoded size of the frames as shown by formula for QP_{low}. Thus, Gonzales

teaches the calculation of the pairs of quantization parameters for each frame with their respective encoded size values. Therefore, it would have been obvious to one of ordinary skill in the art to combine the teachings of Lim and Gonzales, as a whole, for providing optimal visual quality when encoding picture or frame data in an accurate, efficient manner, as disclosed in Gonzales column 8, lines 29-38.

Regarding page 15 of appellant's arguments, appellant states that dependent claims 10, 18 and 25 are patentable over the prior art. The examiner respectfully disagrees. Since the claim language is similar to claims 9, 17 and 24, see the above paragraphs and the rejection for similar analysis.

Regarding page 15 of appellant's arguments, appellant states that dependent claims 11, 29 and 31 are patentable over the prior art. The examiner respectfully disagrees. Since the limitations of claims 11, 29 and 31 are similar to claims 1 and 19, these claims are rejected in a similar manner as claims 1 and 19. See the above paragraphs and the rejection.

Regarding page 15-16 of appellant's arguments, appellant states that dependent claims 12-14 and 26 are patentable over the prior art. The examiner respectfully disagrees. Since the limitations of claims 12-14 and 26 are similar to claims 1 and 19, these claims are rejected in a similar manner as claims 1 and 19. See the above paragraphs and the rejection.

Regarding page 16 of appellant's arguments, appellant states that dependent claim 15 is patentable over the prior art. The examiner respectfully disagrees. Since

the limitations of claim 15 is similar to claims 9-11 and 24-25, see the above paragraphs and the rejection.

Regarding page 17 of appellant's arguments, appellant states that claims 27-28 and 30 are patentable over the prior art. The examiner respectfully disagrees. Since the limitations of claims 27-28 and 30 are similar to claims 1 and 19, these claims are rejected in a similar manner as claims 1 and 19. See the above paragraphs and the rejection.

In conclusion, it is believed that the rejection of claims 1, 4-6, 8-19, 21 and 23-31 is deemed to be reasonable.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

AW
7/24/06

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